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MENIERE'S DISEASE: A SURGEON'S TACTICS

I. Soldatov

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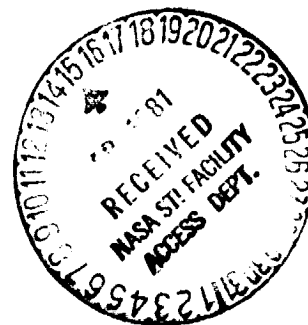
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## MENIERE'S DISEASE: A SURGEON'S TACTICS

I. Soldatov \*

Meniere's disease is manifested by hypoacusis, noise in the ears, /2\*\* dizzy spells accompanied by disruption of equilibrium, nausea, changes in the work of the cardio-vascular, digestive, and urinary systems, and perspiration. The possibility of developing total deafness and periodic work disability conditioned by vestibular dysfunction gives this disease a definite social significance and dictates the necessity of constantly working to improve its treatment. We feel that the character of treatment, particularly surgical tactics, must with Meniere's disease be determined on the basis of modern patho-morphological and patho-physiological information concerning this illness.

In the opinion of most researchers, the basic morphological substratum for the disease is endolymphatic hydrops (edema) of the otic labyrinth, while the main pathogenetic factor is the dysfunction of the vegetative innervation of the inner ear vessels. We may assume that while the endolymphatic system is able to periodically expand at the expense of the perilymphatic and to return to its initial state, the disease proceeds in the form of typical attacks with lucid intervals and is accompanied by fluctuating (vascillating) hypoacusis. However, if the attacks become very frequent, even though less severe, lucid intervals disappear almost entirely, hearing ceases to fluctuate, and hypoacusis develops rapidly, we may consider

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\* Academician, AM S USSR, city of Kuybyshev.

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morphological changes in the membranous formations of the labyrinth, their steady deformation as a result of extended increased pressure. Consequently, two stages of endolymphatic hydrops are presumed -- reversible and irreversible.

In practice it is important to have a clinical method which would confirm judgements on the reversibility of changes in the endolymphatic spaces of the labyrinth during Meniere's disease. Such a method may be the glycerol test used for additional diagnostics in clinical studies. We evaluate this test not only according to acumetric data, as do other authors, but also according to vestibulometry. We consider its results in selecting a type and method of treatment.

Until recently, surgical treatment of Meniere's disease was conducted only in cases where conservative treatment was ineffective, and had for its purpose the arresting of vestibular dysfunction. In recent years the situation has changed, and with fluctuating hypoacusis, certain operations have been viewed as a means of preventing progressive hearing loss. Among such operations are, for example, drainage of the endolymphatic sac, vestibular neurotomy, and others.

Our clinic on otorhinolaryngology at the Kuybyshev Medical Institute recommends early surgical intervention, but primarily those which, including elements of pathogenetic effect, would be technically simple and safe for the patient. Our experience in surgical treatment convinces us of the fact that with clinical symptoms presupposing a reversible stage of endolymphatic hydrops and with their confirmation by the glycerol test, early operations on nerves in the tympanic cavity are expedient. Some otosurgeons

underestimate their effectiveness. This may be explained by specifics of the methodology used: often the cord of the tympanum is severed and the tympanic plexus is intersected, instead of more rational operations resectioning the tympanic plexus, first staining it with osmic acid. The named operations may lead to a re-organization of vegetative innervation of the vessels in the inner ear, and in connection with this may hinder endolymphatic hydrops.

Observations at our clinic based on the results of 250 such operations testify to the fact that these interventions are sufficiently effective not only with vestibular dysfunction, but also with hearing disorders. Thus, a positive result with vestibular dysfunction was noted in 84 percent of those operated, hearing was improved in 12 percent, while in 55 percent it remained at the pre-operative level and did not deteriorate in later years.

In the absence of the effect of resectioning the tympanic cord and tympanic plexus, at this stage of the disease draining and shunting the endolymphatic sac or sacculotomy is expedient, as well as two types of decompressive operations on the cochlea which we have developed: fenestration with drainage and shunting of the tympanic scala and the cochlear duct, shunting them through the cochlear window. If the niche of the cochlear window is narrow and the secondary tympanic membrane is not visible, the first variant of the operation is implemented, and with a wide niche -- the second variant. Polyethylene or metallic tubes with non-slip perforations and a groove are used as shunts. The distal end of the shunt is sealed so that there would be no direct connection of the cochlea with the

tympanic cavity in order to avoid infection of the inner ear.

Operations on the membranal formations of the vestibulum and the cochlea often have a negative effect on the hearing function. Considering this fact, is it necessary to resort to them? Evidently they should not be rejected primarily because operations on the cochlea and the vestibular sac, differing by their less traumatic access, are theoretically the most founded with Meniere's disease. In actuality, results of morphological studies show that edema develops first of all in the cochlear duct, in the vestibular sac, and later in other sections of the endolymphatic system. Moreover, endolymph is produced primarily in the area of the vascular strip of the outside wall of the cochlea. We may assume that further improvement in the technology of surgical intervention, the use of ultra-sound, cryo- and laser effects will reduce to a minimum the negative effect of these operations on the hearing function.

With unilateral affliction, frequent severe dizzy spells, sharply expressed hypacusis, and absence of fluctuation in hearing, operations on the labyrinth, which may be called a partial labyrinthectomy, have been shown to be destructive. After the tympanotomy and removal of the bony covering, we perforate the base of the stirrup, scrape out the membranal labyrinth from the vestibulum and the semicircular canals, and introduce 250,000 units of streptomycin in 0.5 ml of physiological solution into the labyrinth cavity. If the operation is performed properly, there are no relapses of the dizzy spells. Consequently, there is no need to resort to vestibular neurectomy and scarpectomy.

Thus, in surgical treatment of Meniere's disease it is expedient to adhere to by-stage tactics: to start with the simplest and least traumatic interventions -- operations on the nerves of the tympanic cavity, and if

these are ineffective to use more complex methods, including drainage or shunting of the endolymphatic sac. The latter operations we perform, as do other otosurgeons, in the reversible stage of endolymphatic hydrops, i.e., with fluctuating hypoacusis and a positive glycerol test. However, surgical intervention on the nerves of the tympanic cavity and the operations which we have proposed on endo-perilymphatic shunting of the cochlea are possible in the reversible as well as in the irreversible stage. Consequently, surgical intervention in the case of Meniere's disease should be selected with a consideration for its clinical progress and the functional condition of the inner ear, primarily the degree of hypoacusis and fluctuation in hearing.